

IOWA energy BULLETIN

Department of Natural Resources
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Federal Farm Bill

Cultivates Renewable Energy

By Lloyd Ritter, Majority Counsel,
U.S. Senate Agriculture, Nutrition
and Forestry Committee

The new farm bill, signed into law by President Bush this past May, includes unprecedented support for renewable energy production from farms and rural communities. The bill contains a bi-partisan energy title, a first for a farm bill. The \$405 million it contains is the largest single federal investment in renewable energy development in 20 years.

Iowa Senator Tom Harkin, the primary architect of the bill and its energy provisions, states "clean energy from farms and rural areas creates and expands markets for agricultural commodities, increases our energy security and independence, and betters our environment - a winning strategy for everyone. Iowa and the Midwest have long been the country's breadbasket, but they can

also be the energy fields of the future."

Renewing Iowa's Economy

Iowa imports most of its energy in the form of coal and oil yet it has the potential to produce more than 20 times current electricity needs from renewable sources. The energy title will help alter Iowa's energy balance in this regard. The farm bill's energy provisions also support the twin policy goals of increasing efficiency and renewable energy consumption outlined in the State of Iowa 2002 Comprehensive Energy Plan Update.

Increasing farm-based renewable energy generation will especially



strengthen Iowa's rural communities. The Department of Energy estimates that tripling the use of biomass could provide \$20 billion in new income for

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Message from Sharon Tahtinen

Energy Opportunities for Iowa

Many exceptional events are occurring in the world of energy, both in Iowa and on the national forefront.

I discussed in my last message the reorganization of the Department of Natural Resources, with one of the changes being a new bureau, Energy and Waste Management.

It is my pleasure to introduce you to the head of our new bureau,

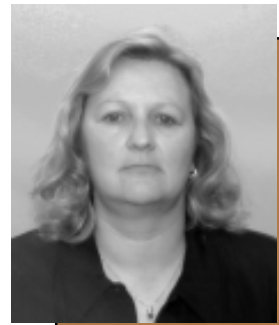


Brian Tormey

Brian Tormey. Brian is a 13-year veteran of the DNR, specializing in solid waste management issues. He brings strong knowledge to our bureau, and we look forward to working with him closely. I will continue my role leading the department's energy issues and programs, especially relating to state and national policy.

Speaking of policy, one of the most landmark pieces of federal legislation affecting renewable energy passed this spring. The federal farm bill brings significant opportunities for Iowa, especially in the development of biomass. The DNR is already working on partnerships and strategies for maximizing these opportunities, with the goals of expanding renewable energy's position in our state's energy portfolio and continuing Iowa's national leadership in this arena.

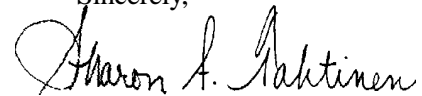
That leadership was again reaffirmed this spring when Alliant Energy announced the development of yet two more wind farms in the state, one near Spirit Lake and one in



Hancock County. The wind farm near Spirit Lake will feature 1.5 MW turbines, the largest in the state. The two farms will generate enough electricity for 40,000 homes and will be installed by the end of 2003.

As you can see, energy continues to be an important focus for the DNR, Iowa and the nation. Let's work together to make new opportunities a reality.

Sincerely,



Sharon A. Tahtinen
Public Service Executive

Apply for the 2002 Iowa Environmental Excellence Awards

Governor Vilsack and the State of Iowa invite you apply for the prestigious 2002 Iowa Environmental Excellence Awards, recognizing leadership and innovation in managing our state's natural resources.

Iowa organizations, businesses and individuals will be recognized for their leadership, innovation and ethics in effectively managing natural resources.

Sponsors

The awards are coordinated by the Governor's Office, the Iowa Department of Natural Resources, the Iowa Department of Agriculture and

Land Stewardship, the Iowa Department of Economic Development, and the Iowa Department of Education.

Categories

Awards will be given in the following categories:

- Environmental excellence award
- Special award in water quality
- Special award in waste management
- Special award in energy efficiency/renewable energy development
- Special award in air quality
- Special award in habitat

Deadlines

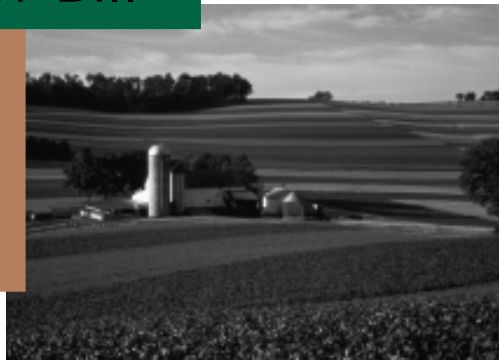
Applications must be postmarked by September 27, 2002. Awards will be announced and presented in December 2002.

To obtain an application, go to www.state.ia.us/dnr and click on the Environmental Excellence Awards logo. Or contact Julie Tack with the Iowa DNR at (515) 281-8665; e-mail: Julie.Tack@dnr.state.ia.us



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these areas. This same increase in biomass development could reduce global warming emissions by the same amount as taking 70 million cars off the road. Wind energy could provide an additional \$1.2 billion to rural communities and 80,000 new jobs.

The farm bill's energy provisions include:

- Up to \$150 million per year to continue USDA's bioenergy program, which supports increased production of ethanol and biodiesel;

- \$115 million in grants and loans for farmers to finance renewable energy systems, such as wind turbines or solar devices, and for energy efficiency improvements;

- A requirement that federal agencies give a purchasing preference to biobased products made from domestic, renewable agricultural and forestry materials;

- \$5 million for USDA to test emerging biobased products for use by the federal government and the public;

- Development of a labeling system to identify and distinguish sustainable biobased products from other products;

- \$5 million for a national

biodiesel fuel education program to inform government and private-sector audiences about the benefits of biodiesel fuel use;

- Grants for on-farm energy audits to reduce energy use and assess opportunities for renewable energy generation;

- Grants for biorefineries to produce fuels and chemicals as

substitutes for petroleum-based products;

- \$75 million for research and development of biomass by USDA in collaboration

with the Department of Energy, and private sector organizations;

- Research of carbon sequestration in soils and plants and greenhouse gas emissions;

- Further collaboration between the Departments of Agriculture and Energy regarding hydrogen and fuel cell technology development;

- Expansion of the Agriculture Department's value-added grant program to include a broad array of renewable energy sources, such as wind power.

For more information about these initiatives contact Lloyd Ritter at the Senate Agriculture Committee at (202) 224-2035. Or contact Sharon Tahtinen at the Iowa DNR at (515) 281-7066; e-mail:

Sharon.Tahtinen@dnr.state.ia.us

More than \$400 million will be available for renewable energy development through the farm bill.

Who's Aldo?

Find Out at the Iowa State Fair!

The DNR's Energy and Waste Management Bureau has an exciting new exhibit

at the 2002 Iowa State Fair, August 8-18!



An air-conditioned semi-truck

trailer will be on display near the DNR Building (which is near the fairground's west entrance). Fair attendees can walk in and learn how the energy and waste choices they make impact our environment. The trailer includes interactive displays, computer kiosks, a life-size, talking mannequin, and much more. You'll even get to meet Aldo!

You could win a Neptune Washer and Dryer! Be sure and stop by!

Combined Heat and Power: Getting the Most “Bang” Out of Energy Production

The electricity Iowans consume everyday is usually produced at power plants that rely on steam generation.

At these plants, a fuel – typically coal – is used to boil water, creating steam that turns a turbine to generate electricity. Unfortunately, steam generation plants are only about 33 percent efficient. Much of the remaining energy is wasted as the steam is released into the atmosphere or lost in transmission lines during delivery.

A solution to this inefficiency is a system called Combined Heat and Power. Here are some questions and answers to show how they create more “bang for the buck” from Iowa’s energy sources.

What Is Combined Heat and Power (CHP)?

CHP systems recover waste heat while generating electricity. The recovered heat is often used to meet on-site heating and cooling loads.

How Does CHP Work?

The thermal energy recovered is used to directly heat or cool a building. Because CHP systems capture thermal energy that would usually be rejected, the total efficiency is much greater than traditional systems, achieving an overall energy efficiency level of 70 percent or greater.

How Can the Waste Energy Be Used?

It can be used in space heating,

domestic hot water heating, boiler feed-water preheating, steam production to supply turbines, pool water heating, steam/hot water for absorption cooling, and process hot water/steam.

Is It Easily Available?

Several technologies are available to produce both electrical and thermal energy, including: internal combustion engines, steam turbines, gas turbines, fuel cells, microturbines and hybrid fuel cell/microturbine systems. Each system varies in capacity, electric efficiency, output and cost.

What Are the Benefits?

CHP systems are a convenient, cost-effective application for large facilities. They can operate on-site at industrial plants, commercial buildings, government facilities and similar institutions. Currently, universities are the top commercial CHP application. CHP allows flexibility in using a variety of fuels while reducing capital costs, operating costs and maintenance costs.

Along with increased energy efficiency, CHP systems help the environment. Capturing waste heat reduces emissions of greenhouse gases, air pollutants, and uses no ozone-depleting refrigerants.



Traditional generation plants use steam to generate electricity, much of which is lost as waste heat.

What Are the Barriers?

Many facilities do not use CHP simply because they are unaware of the technology. Additionally, on-site generation requires a backup source of power in case of outages. Also, grid connection arrangements must be negotiated.

What Is the Future?

The U.S. Department of Energy and Environmental Protection Agency have set a goal to double U.S. CHP capacity between 1999 and 2010 by adding approximately 50,000 MW of new capacity. If this goal is achieved, CHP would represent about 14 percent of U.S. electric generating capacity.

For more information about combined heat and power systems, contact Julie Chang with the Iowa DNR at (515) 281-5585; e-mail: Julie.Chang@dnr.state.ia.us

New Wind Turbine Turns Up the Power in Clarion-Goldfield Schools

Clarion-Goldfield is Iowa's latest school district to adopt wind power as an energy source. The district installed a 50-kW turbine near its high school in Clarion, and began producing electricity on June 15.

According to Dr. Robert Olson, superintendent at Clarion-Goldfield Community Schools, the district became interested in wind energy about seven years ago when it saw other Iowa school districts installing turbines for power production.

"Wind energy offers an excellent opportunity for us to meet electricity needs, but more importantly, to create a hands-on learning experience for our students," said Olson.

The school is planning to create a physics/renewable

energy curriculum that includes monitoring of the turbine's electricity production, wind speeds and posting on the district's Web site.

The school district received technical assistance from the Iowa DNR and Wind Utility Consulting, a company based in Jefferson, IA. Financial assistance came from a U.S. Dept. of Energy grant for more than \$26,000 obtained by the DNR, as well as \$110,000 in low-interest loans through the DNR Energy Bank program and the Iowa Energy Center's Alternate Energy Revolving Loan program.

The turbine should save the district between \$6,000 and \$9,000, depending on wind speeds.

"This has turned into a great source of community pride," said Olson. "The turbine has changed the skyline and landscape of Clarion, and our town has been instrumental in this commitment to wind energy."

Other school districts with wind turbines are Spirit Lake, Akron-Westfield, Forest City, Clay Central-Everly, Sentral and Nevada. Spirit Lake was one of the first districts in the Midwest to adopt wind power in 1993, and installed a second 750 kW turbine in 2001.

For more information, contact Lori McDaniel with the DNR (515) 281-8094; e-mail: Lori.McDaniel@dnr.state.ia.us



Installation of the 50 kW wind turbine in June near Clarion Goldfield High School.

Tax Break for Hybrid Electric Vehicle Owners



Owners of hybrid electric vehicles, including the Honda Civic Hybrid and Insight, and the Toyota Prius – are eligible for a \$2,000 federal tax deduction from the Internal Revenue Service (IRS).

According to Honda, in recently issued guidance, the IRS clarified that hybrid vehicles are eligible for the "clean-fuel" vehicle deduction provided by section 179A of the Internal Revenue Code. Vehicles considered hybrids include those powered both by a gasoline internal combustion engine and an electric motor that is recharged as the vehicle operates.

For complete details on the deduction, consumers should check with their tax advisors or the IRS Web site at: www.irs.gov

The above is provided for general informational purposes and does not constitute tax advice.

Did You Know...

Recycling one aluminum saves enough energy to power your TV for 3 hours.

The energy saved from aluminum cans redeemed in Iowa each year is enough to heat more than 26,000 homes.



Teachers! Get Ready for Class!

Ready to introduce energy efficiency and renewable energy concepts in your classroom? Here are some excellent materials and resources for fast, easy and interesting activities your students will enjoy and benefit from:

Iowa Air Quality Education

The Iowa DNR offers a coloring book and learning materials about air quality and energy at www.iowacleanair.org/citizen/citizen.htm

U.S. Department of Energy – Kids and Educators Pages

A wealth of information and fun activities is available through the federal government. Go to: www.energy.gov and click on the “Kids Zone” or “Schools” pages.

Energy Quest

The California Energy Commission’s Energy Quest page is a colorful cartoon world of educational energy information and activities. Go to: www.energyquest.ca.gov/index.html

Air Quality Lessons for Middle Schools

Airwise, a product of the Ameri-

can Lung Association, teaches kids about air quality. Free packets are available on line: www.airwise.org

Busy Teachers’ Web Site

Sponsored by the Georgia Technical Institute, this site offers links to Web sites that offer lesson plans and activities for K –12. www.ceismc.gatech.edu/busyt/ele.html

Florida Solar Energy Center – Teacher Resources

Offering teacher resources on alternative energy and energy efficiency. Go to www.fsec.ucf.edu/ed/teachers

Daylight Boosts Test Scores

A new study about the effects of daylight on student performance shows a 21 percent improvement in learning rates for classrooms with the most daylighting, compared to those with the least daylight.

Released in February 2002, the study was performed at two elementary schools, at the Capistrano Unified School District, Calif., and the Seattle Public School District, Wash. The study evaluated performance of students on standardized math and reading tests. According to the survey:

- A teacher bias analysis found no assignment bias (i.e. better teachers in more brightly lit classrooms) that might have skewed results.

- A grade level analysis found that the daylighting effect does not vary by grade.

- A range of factors potentially

affect student test scores, but of the many variables studied, only daylighting showed a strong correlation to improved standardized test scores. Results were observed with a 99.9 percent statistical certainty.

- An absenteeism analysis found that physical classroom characteristics, such as daylighting, air conditioning, or portable classrooms, did not have an effect on student absenteeism.

According to the company that performed the analysis, the results of the study could have important implications for the design of schools and other buildings. The study was conducted on behalf of the California Energy Commission. For a copy of the survey, go to:

www.newbuildings.org/pier, then click on “daylighting & productivity.”

New Web Site Promotes Sustainable Design

The State of Iowa has created a new Web site to promote sustainable design techniques in buildings.

Featuring information about the State of Iowa’s Sustainable Design Initiative, this site is an excellent resource on green building techniques in Iowa, including the use of energy efficiency, renewable energy, recycled materials and reduction of waste streams.



www.sustainableiowa.org

DNR Sponsors New Renewable Energy Studies

The Iowa DNR has released three new studies evaluating renewable energy potential in Iowa.

Two of the studies, both on switchgrass production, were completed by Chariton Valley RC&D in southern Iowa. The first study evaluated cropping system alternatives; 10 producers established field-scale biomass systems on more than 500 acres to determine if crops such as corn, beans or grass could be effectively grown with switchgrass. The second study assessed the wildlife impacts of switchgrass development, including the affects of harvesting and partial harvesting of switch-

grass fields on habitats.

The final study evaluated potential wind energy markets and was conducted by Tom Factor, Fairfield, IA, and Tom Wind, Jefferson, IA. The study assessed the cost-effectiveness of wheeling power from geographic regions with strong wind regimes, to Midwest regions/metropolitan areas with high electricity consumption.

The complete reports for these three studies are available at: www.state.ia.us/dnr/energy/programs/renewables. Or contact Lori McDaniel at (515) 281-8094 or e-mail: Lori.McDaniel@dnr.state.ia.us

Two New Wind Farms for Iowa

Alliant Energy has announced it is awarding contracts to two wind developers to provide electricity for its customers, enough to meet the annual electricity needs of 40,000 Iowa homes.

Clipper Windpower is planning to install 29 1.5 MW wind generators near Spirit Lake, the largest wind capacity turbines in Iowa. The project will generate \$1.2 million in local expenditures and 120 construction jobs, according to Alliant.

FPL Energy LLC intends to develop a similar-sized wind farm in Hancock County. Both wind farms will produce 150,000 MWH of wind power, and be producing electricity by the end of 2003.

For more information, contact Lori McDaniel with the DNR at (515) 281-8094; e-mail: Lori.McDaniel@dnr.state.ia.us; or go to Alliant Energy's Web site at: www.alliantenergy.com/news

Attention Solar Energy Designers and Dealers

The Iowa DNR is developing a photovoltaic "Yellow Pages" for the Midwest. If you are a PV system designer, installer, manufacturer or retailer, the DNR would like to include you in this directory.

The PV Yellow Pages will be available on CD-Rom and the Internet, and will include information and contacts for the following categories:

- PV system designers, installers, maintainers and retailers
- Educational resources

- Financial incentives
- Interconnection and net metering
- and PV manufacturers.

All categories will include, to the extent possible, mailing addresses, phone and fax numbers, and Internet links for professionals in Iowa, Minnesota, Wisconsin, Illinois, Missouri and Nebraska.

To be included in the Midwest Photovoltaic Yellow Pages, free of charge, please contact Alex Moon at (515) 281-7018 or e-mail: Alex.Moon@dnr.state.ia.us

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Calendar of Events

August 8-18. Des Moines, Iowa. *Iowa State Fair*. The DNR's Energy and Waste Management Bureau has a brand new display at the DNR Building, featuring a semi-truck trailer filled with interactive displays, hands-on materials and information that teaches Iowans about their energy and waste choices. A Neptune washer and dryer have been donated by Maytag to be given away. Stop by during the fair. For information, contact Julie Tack at (515) 281-8665; e-mail: Julie.Tack@dnr.state.ia.us

August 21-22. Chicago, Illinois. *Regional Ethanol Symposium for Lenders*. This program will enhance the knowledge base about ethanol production and policy matters among those who fund value-added projects. For more details, contact Jaime Keating-Klco at: jaime@bbiethanol.com or (719) 942-4353.

September 7-8. Hiawatha, Iowa. *I-Renew 11th Annual Energy Expo*. Featuring workshops, lectures, vendors, energy discussions, entertainment and more. Learn all about renewable energy in Iowa. Located at the Prairiewoods Franciscan Spirituality Center. For information, contact the Iowa Renewable Energy Association, (319) 288-2552; e-mail: irenew@irenew.org

September 27. Deadline for applying for the Governor's Iowa Environmental Excellence Awards. Applications are available on the Internet at: www.state.ia.us/dnr, or by calling Julie Tack at (515) 281-8665.

October 2. Des Moines, Iowa. *Energy Efficiency Conference*. Sponsored by the Iowa Association for Energy Efficiency. For information, contact Patti Cale at (515) 289-1999, e-mail: energy@iamu.org

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